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Learning Technologies Project Bulletin

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In the Spotlight

Live From the Sun Debuts— Interactive Adventure from PTK

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Live From the Sun is the latest in the ongoing series of interactive learning adventures from Passport to Knowledge. Live From the Sun will feature the latest discoveries about our local star, the ultimate source of all life on Earth.

The Live From the Sun preview Web site will debut before the end of January, with the full site set to debut by mid-February. The site will be organized around the four main themes of the project: *The Sun as a Star*, *How the Sun Works*, *The Sun-Earth Connection*, and *The Sun in Human History and Culture*.

Visitors will also find the usual PTK features, including: *Interact*, in which students and teachers are able to interact with scientists and each other; *Collaborate*, where students will debate about how to observe the Sun using an international fleet of spacecraft in combination with Earth-bound telescopes; a special *Educators* section designed just for teachers; and *Sun Fun*, which uses some of RSPAC's games and puzzles with a solar theme.

Passport to Knowledge and Greg Moraes Studio, interacting with RSPAC, are responsible for the conceptual design of the site. Programming, layout, and other support comes from RSPAC. Original artwork by space artist Adolf Schaller (one of the Emmy-winning artists for Carl Sagan's *Cosmos* series) will be a special feature. There will be links to other LTP projects, including Athena, Public Connection, WeatherNet4, and, of course, NASA's Observatorium.

The online materials are only part of the fully-integrated multimedia project of "100% video, 100% hands-on, and 100% online." The broadcasts set for March 16 and April 13 (1:00 p.m. Eastern) will feature documentary reports from NASA's Goddard Space Flight Center, the National Solar Observatories at Kitt Peak and Sacramento Peak, NOAA's Space Environment Center in Boulder, CO, and Lockheed Martin in Palo Alto, CA.

Activities in the Live From the Sun teacher's guide will explore many of the key concepts related to solar physics, all made understandable to middle school students, but also adaptable up and down to elementary and high school levels. Students will use M&Ms to model the fusion reactions that power the Sun and observe the "Sun on the boil" by cooking oatmeal to simulate convection currents. And no study of the Sun would be complete without getting out the magnets and iron filings to demonstrate the magnetic forces that are responsible for many of the processes that occur on the Sun.

PTK has found that one of the most important aspects of these projects is how online interaction creates a true community of teachers who are anxious to deliver the latest information to their students. A teacher discussion forum, Discuss-Sun, is already active. It serves as a place for teachers to get to know each other and to share ideas and ask questions. When one teacher posts a question, several others respond with helpful ideas and suggestions.

Teachers have discussed how they will integrate Live From the Sun into their curricula and how they are able to cover more of their state standards through Passport to Knowledge projects than through their textbooks. They like the strong science content Passport to Knowledge projects offer, they have shared the excitement past projects have brought into their classrooms, and they have discussed how much they are looking forward to participating in Live From the Sun. Discuss-Sun is an important feature that binds all of the components of the project together.

If you would like to be on the LTP Bulletin mailing list, please send e-mail to Scott Gillespie at: sgillespie@rspac.ivv.nasa.gov, or write to: BDM/RSPAC, 100 University Drive, Fairmont, WV 26554. Phone: (304) 367-8324, fax: (304) 367-8211.

News Bytes

NASA's Learning Technologies Channel Schedule

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The following is a schedule of upcoming events on NASA's Learning Technologies Channel (LTC). For more information or to access any of these events, got to **http://quest.arc.nasa.gov/ltc/schedule.html**.

Tuesday, January 19
Introduction to Aerodynamics and FoilSim
Noon-2:00 p.m. Pacific (3:00-5:00 p.m. Eastern)
Join us for this lecture on aerodynamics and a demonstration of FoilSim, a software simulation program that has been developed at NASA's Lewis Research Center (LeRC).

Tuesday, January 19
US Department of Education Satellite Town Meeting
5:00-6:00 p.m. Pacific (8:00-9:00 p.m. Eastern)
This month's topic will be "Learning Together: Diverse Schools Building One America."

Wednesday, January 20
Tour of the International Space Station Training and Mock-up Facility
10:00-11:00 a.m. Pacific (1:00-2:00 p.m. Eastern)
The LTC will host this event on the third Wednesday of every month. You are invited to join our tour guide at the Johnson Space Center (JSC) in Houston, Texas, where you will be able to ask questions during the tour and have them answered during the event. If you will not be able to join us for this month's event, we hope you can make next month's tour.

Thursday, January 21
The Astrobiology Series
10:00-11:00 a.m. Pacific (1:00-2:00 p.m. Eastern)
Join us for this exciting weekly series which will explore our universe in a new way. The series will focus on six important questions dealing with life and the universe.

Thursday, February 11
The NASA CONNECT Series
Live Broadcast, 7:00-7:30 a.m. Pacific (10:00-10:30 a.m. Eastern)
Rebroadcast, 1:00-1:30 p.m. Pacific (4:00-4:30 p.m. Eastern)
Join us for the third in this exciting series of five educational programs that show students examples of how mathematics and science are used every day by NASA's aeronautical engineers and scientists.

Thursdays, February 18 and 25
Two Exciting Programs Focused on the International Space Station
10:00-11:00 a.m. Pacific (1:00-2:00 p.m. Eastern)
Sixth Annual International Space Station Satellite Teleconference Series. Join us for these live, interactive programs dedicated to International Space Station (ISS) outreach. The programs provide a unique opportunity for interactivity with space station experts and include updates on ISS assembly and current microgravity research.

When there is no LTC event scheduled, we will send out NASA TV.

JavaShop Coloring Book Applet Great Fun for Children

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JavaShop would like to introduce its newest addition, the Coloring Book. Children love to color, and with this applet you can provide hours of enjoyment. If you insert your project's images into the Coloring Book, children will be able to learn about your LTP group's Web site and have fun at the same time. The Coloring Book features 20 different colors and three different drawing tools. With each image you insert, you can add your own text to describe it–and there's no limit, so you can insert as many images and as much text as you wish.

For more information about the Coloring Book applet, go to **http://developers.ivv.nasa.gov/tech/javashop/coloring/**.

Other JavaShop productions available to LTP groups include:

Side Scroller Applet
This applet scrolls regular and hyperlinked text horizontally.
Drop-Down Menu Applet
The drop-down menu applet provides an easy way to navigate your site.
Crossword Puzzle
All you need are the words and clues and this applet will create the puzzles for you.
The Scroller
The Scroller enables you to provide scrolling text containing HTML links.
Java Hangman
A fun and educational game for all ages.
Java Animator
A user-controlled slide show applet.
Headline Scroller
Scroll through a list of headlines.
Wordsearch
Search for hidden words from a large grid.
Line Graph
Draw a line graph to illustrate your Web articles.
Pie Chart
Like line graphs, pie charts are great for showing statistics, progress, etc.

After using any of the JavaShop productions, please let their creators know what you liked and disliked, or about features you would like to see added. Send your comments to JavaShop@rspac.ivv.nasa.gov.

This bulletin will also be available in Adobe Acrobat format on the Developers' Workshop Web site at: **http://developers.ivv.nasa.gov/collab/pubs/bulletin/**

Nothin' but Net

Taking PNGs to the Next Level: Creating Animations with MNG

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One of the best ways to grab and hold a viewer's attention on the Internet is to include animation on the page, and the easiest way to create animation is to use a GIF animator. GIF animations are great for small images, but they have several attributes that cause limitations, including an extremely large size when several frames are used, a limit of 256 colors, and single-color, single-layer transparency.

The Portable Network Graphic (PNG) format is a new standard for Web browsers and image editing and publishing programs. With the creation of the PNG format, the GIF animator may be replaced on the Internet sometime in the near future. There is a problem with the PNG format, though, and it's that it can't be animated, so the GIF format holds a slight edge right now. (Check out last month's article in the "Nothin' but Net" section of the *LTP Bulletin* titled "A New Image Format? PNG Now Taking Off.")

The creators of the PNG format knew that if it was to become popular enough to replace the GIF format they would have to find a way to animate it. The result of their work is the Multiple-image Network Graphic (MNG), and it has several features of the PNG format. The MNG is a multiple-image member of the PNG family that can contain animations (such as slide shows) that are comprised of PNG single-image datastreams. Highly compressible Delta-PNG images and lossy JNG (JPEG Network Graphics) images can also be incorporated. (Look for more information about JNGs in future editions of the *LTP Bulletin*.) The MNG format is still being updated and finalized.

Some of the features of the MNG format include:

← Object- or sprite-based animation, with commands to move, copy, and paste images (rather than replicate them as in GIF)
← Nested loops for complex animations
← Better compression than GIF animations
← Both PNG and JPEG-based (JNG) integration
← Support for different image formats (JPEG/JNG) to allow for better compression
← Support for transparent JPEGs

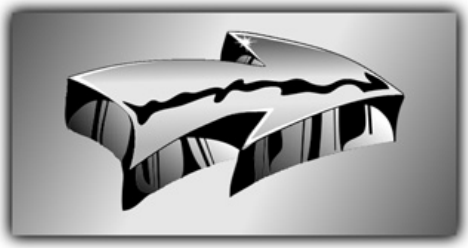
MNGs also share some of the PNG's features:

← Multiple CRCs are available so file integrity can be checked without viewing
← Signature that is able to detect all of the most common types of file corruption
← Non-patented compression, either completely lossless with PNGs or lossy with JPEGs
← Full alpha support (multi-level transparency) is now in place for all image objects
← Gamma and color correction for cross-platform consistency
← Ability to store copyright and other textual information, either compressed or uncompressed
← Full year 2000 (Y2K) support

The downside to current use of the MNG format is that it is not yet 100 percent complete. There is no MNG reference library available for programmers and MNG is behind on application support (there are only a few applications that currently support the MNG format).

The MNG format seems as though it will be a promising tool in the future, but how near or far into the future we must go before it becomes commonplace is anyone's guess. It is nearly ready to be frozen (completed) now, but since browser and application support are lacking, there is quite a bit of development yet to be accomplished. Once the MNG format is finished, everyone using the World Wide Web will find that they have yet another toy to play with.

To learn more about MNGs, visit the MNG homepage at **http://www. cdrom. com/pub/mng.**



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